CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/KSR/CEMENT/2014-15 Date: 28.07.2014

TEST REPORT

CLIENT	:	**Asst. Executive Engineer,** SWD, Yelahanka Zone, BBMP, Bangalore.
AGENCY	:	**Mr. Kondulu Subramanya Raju,** Contractor, Bangalore.
NAME OF THE WORK	:	Remodeling of SWD and its allied works in critical low lying area (Flood prone area) at Bhadrappa Layout, Nagashettihalli, Sanjayanagara in Yelahanka, BBMP, Bangalore.
REFERENCE	:	BBMP/EE/SWD-YZ/WO/06/2012-13 Dated; 18.03.2013
SAMPLE ID	:	Cement
SAMPLES SUPPLIED BY	:	AGENCY

The results of the tests conducted on the cement sample are as follows:

Sl.No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4)	30.50 %	-
2	a) Initial Setting Time	IS-4031 (Part -5)	145 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5)	460 Minutes	Not More than 600 Minutes
3	Soundness	IS-4031 (Part 3) by the Le-Chatelier method	1 mm	Not more than 10 mm

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NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/KSR/SAND/2014-15 : 28.07.2014

TEST REPORT ON FINE AGGREGATES (SAND)
IS 383-1970 (RA- 2002)

Client : **Asst. Executive Engineer,** SWD, Yelahanka Zone, BBMP, Bangalore.

Agency : **Mr. Kondulu Subramanya Raju,** Contractor, Bangalore.

Name of Work : Remodeling of SWD and its allied works in critical low lying area (Flood prone area) at Bhadrappa Layout, Nagashettihalli, Sanjayanagara in Yelahanka, BBMP, Bangalore.

Reference : BBMP/EE/SWD-YZ/WO/06/2012-13 Dated; 18.03.2013

Date of Testing : 28.07.2014

Material : Sand Total Wt. of Aggregates in gms **2000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits For Zone-II
10	0	0	0	100	100
4.75	98	4.90	4.90	95.1	90-100
2.36	215	10.75	15.65	84.4	75-100
1.18	523	26.15	41.80	58.2	55-90
600 Micron	422	21.10	62.90	37.1	35-59
300 Micron	493	24.65	87.55	12.5	8-30
150 Micron	205	10.25	97.80	2.2	0-10

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Job No.: CTCE/BBMP/KSR/AGG/2014-15 : 28.07.2014

TEST REPORT ON COARSE AGGREGATES
IS 383-1970 (RA- 2002)

Client : **Asst. Executive Engineer,** SWD, Yelahanka Zone, BBMP, Bangalore.

Agency : **Mr. Kondulu Subramanya Raju,** Contractor, Bangalore.

Name of Work : Remodeling of SWD and its allied works in critical low lying area (Flood prone area) at Bhadrappa Layout, Nagashettihalli, Sanjayanagara in Yelahanka, BBMP, Bangalore.

Reference : BBMP/EE/SWD-YZ/WO/06/2012-13 Dated; 18.03.2013

Date of Testing : 28.07.2014

Material : 40mm Aggregates

Total Wt. of Aggregates in gms **26000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits
80	0	0	0	100	100
40	990	3.81	3.81	96.19	95-100
20	15265	58.71	62.52	37.48	30-70
10	6230	23.96	86.48	13.52	10-35
4.75	2745	10.56	97.04	2.96	0-5

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Job No.: CTCE/BBMP/KSR/CUBE/2014-15 06.10.2014

TEST REPORT ON CONCRETE CUBES

Client	: **Asst. Executive Engineer,** SWD, Yelahanka Zone, BBMP, Bangalore.
Agency	: **Mr. Kondulu Subramanya Raju,** Contractor, Bangalore.
Name of the work	: Remodeling of SWD and its allied works in critical low lying area (Flood prone area) at Bhadrappa Layout, Nagashettihalli, Sanjayanagara in Yelahanka, BBMP, Bangalore.
Reference	: BBMP/EE/SWD-YZ/WO/06/2012-13 Dated; 18.03.2013
Sample ID	: Cement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{15}
Compressive Strength as on	: 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	29.09.2014	06.10.2014	8.254	265.3	11.79
2	29.09.2014	06.10.2014	8.374	278.2	12.36
3	29.09.2014	06.10.2014	8.423	289.6	12.87

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Job No.: CTCE/BBMP/KSR/CUBE/2014-15

27.10.2014

TEST REPORT ON CONCRETE CUBES

Client	: **Asst. Executive Engineer,** SWD, Yelahanka Zone, BBMP, Bangalore.
Agency	: **Mr. Kondulu Subramanya Raju,** Contractor, Bangalore.
Name of the work	: Remodeling of SWD and its allied works in critical low lying area (Flood prone area) at Bhadrappa Layout, Nagashettihalli, Sanjayanagara in Yelahanka, BBMP, Bangalore.
Reference	: BBMP/EE/SWD-YZ/WO/06/2012-13 Dated; 18.03.2013
Sample ID	: Cement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{15}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	29.09.2014	27.10.2014	8.195	365.3	16.24
2	29.09.2014	27.10.2014	8.364	390.2	17.34
3	29.09.2014	27.10.2014	8.278	378.9	16.84

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NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No : CTCE/BBMP/KSR/WBM-II/2014-15 Date: 26.09.2014

REPORT

Client	:	**Asst. Executive Engineer,** SWD, Yelahanka Zone, BBMP, Bangalore.
Agency	:	**Mr. Kondulu Subramanya Raju,** Contractor, Bangalore.
Name of the Work	:	Remodeling of SWD and its allied works in critical low lying area (Flood prone area) at Bhadrappa Layout, Nagashettihalli, Sanjayanagara in Yelahanka, BBMP, Bangalore.
Reference	:	BBMP/EE/SWD-YZ/WO/06/2012-13 Dated; 18.03.2013
Type of Mix	:	Water Bound Macadam (Grade-II Metal)
Date of Sampling	:	24.09.2014
Date of Testing	:	26.09.2014

1) SEIVE ANALYSIS :

IS Sieve designation Size, mm	Percentage Passing for Graded Aggregate of Nominal size	Percentage by Weight Passing as per MORTH table 400-7
90mm	100.00	100.00
63mm	93.46	90-100
53mm	28.95	25-75
45mm	8.20	0-15
22.4mm	2.33	0-5

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Job No.: CTCE/BBMP/KSR/WBM/AIV/2014-15 26.09.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** SWD, Yelahanka Zone, BBMP, Bangalore.
Agency	**Mr. Kondulu Subramanya Raju,** Contractor, Bangalore.
Name of the Work	Remodeling of SWD and its allied works in critical low lying area (Flood prone area) at Bhadrappa Layout, Nagashettihalli, Sanjayanagara in Yelahanka, BBMP, Bangalore.
Reference	BBMP/EE/SWD-YZ/WO/06/2012-13 Dated; 18.03.2013
Source / Location	WBM Mix Plant, Bangalore
Type of Mix	Water Bound Macadam
Date of Testing	26.09.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	387	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	84	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines	22.22	21.82	
	$100^* (W_2/W_1)\%$			22.02

Comments:

→ Maximum allowable Aggregate Impact value for Water Bound Macadam is 30%

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Job No.: CTCE/BBMP/KSR/WBM-II/S-T/2014-15 26.09.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** SWD, Yelahanka Zone, BBMP, Bangalore.
Agency	**Mr. Kondulu Subramanya Raju,** Contractor, Bangalore.
Name of Work	Remodeling of SWD and its allied works in critical low lying area (Flood prone area) at Bhadrappa Layout, Nagashettihalli, Sanjayanagara in Yelahanka, BBMP, Bangalore.
Reference	BBMP/EE/SWD-YZ/WO/06/2012-13 Dated; 18.03.2013
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Water Bound Macadam (Grade-II Metal)
Date of Testing	26.09.2014

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.85%**

Elongation Index = **13.98%**

Result : Combined Flakiness & Elongation index 25.83%

Comments:

Maximum allowable Falakiness & Elongation Index for Water Bound Macadam is 30%

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Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/KSR/WBM-III/2014-15 Date: 27.09.2014

REPORT

Client	:	**Asst. Executive Engineer,** SWD, Yelahanka Zone, BBMP, Bangalore.
Agency	:	**Mr. Kondulu Subramanya Raju,** Contractor, Bangalore.
Name of the Work	:	Remodeling of SWD and its allied works in critical low lying area (Flood prone area) at Bhadrappa Layout, Nagashettihalli, Sanjayanagara in Yelahanka, BBMP, Bangalore.
Reference	:	BBMP/EE/SWD-YZ/WO/06/2012-13 Dated; 18.03.2013
Type of Mix	:	Water Bound Macadam (Grade-III Metal)
Date of Sampling	:	25.09.2014
Date of Testing	:	27.09.2014

1) SEIVE ANALYSIS:

IS Sieve designation Size,mm	Percentage Passing for Graded Aggregate of Nominal size	Percentage by Weight Passing as per MORTH table 400-7
63mm	100.00	100.00
53mm	97.80	95-100
45mm	68.35	65-90
22.4mm	6.70	0-10
11.2mm	2.15	0-5

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Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** SWD, Yelahanka Zone, BBMP, Bangalore.
Agency	**Mr. Kondulu Subramanya Raju,** Contractor, Bangalore.
Name of the Work	Remodeling of SWD and its allied works in critical low lying area (Flood prone area) at Bhadrappa Layout, Nagashettihalli, Sanjayanagara in Yelahanka, BBMP, Bangalore.
Reference	BBMP/EE/SWD-YZ/WO/06/2012-13 Dated; 18.03.201328.02.2014.
Source / Location	WBM Mix Plant, Bangalore
Type of Mix	Water Bound Macadam
Date of Testing	27.09.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	383.5	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	88	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	297	296.5	
4	Aggregate Impact value = percent fines	22.86	22.69	
	$100^* (W_2/W_1)\%$			22.77

Comments:

→ Maximum allowable Aggregate Impact value for Water Bound Macadam is 30%

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** SWD, Yelahanka Zone, BBMP, Bangalore.
Agency	**Mr. Kondulu Subramanya Raju,** Contractor, Bangalore.
Name of Work	Remodeling of SWD and its allied works in critical low lying area (Flood prone area) at Bhadrappa Layout, Nagashettihalli, Sanjayanagara in Yelahanka, BBMP, Bangalore.
Reference	BBMP/EE/SWD-YZ/WO/06/2012-13 Dated; 18.03.2013
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Water Bound Macadam (Grade-III Metal)
Date of Testing	27.09.2014

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **12.47%**

Elongation Index = **13.63%**

Result : Combined Flakiness & Elongation index 26.10%

Comments:

Maximum allowable Falakiness & Elongation Index for Water Bound Macadam is 30%

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